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ARL 03-83

OCT 05 2007

Amendments to the Claims:

This listing of Claims will replace all prior versions and listings of Claims in the Application.

Listing of Claims:

Please Amend the Claims as Follows:

Claims 1-12 (Canceled).

Claim 13 (currently amended): A multilayer structure, comprising:

a silicon based substrate; and

an epitaxial $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$ film grown on the silicon based substrate, where X is a

chalcogenide selected from the group consisting of S and Se; X' is a higher atomic

number chalcogenide relative to X and X' is selected from the group consisting of S, Se

and Te; x is a number greater than zero and less than 1; and z is a number greater than or

equal to zero and less than one;

~~The multilayer structure of claim 1, further comprising~~

a $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ layer grown on the $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$ film, the $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ layer being

substantially lattice matched to the $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$ film.

Claim 14 (original): The multilayer structure of claim 13, wherein X is Se and X' is Te.

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Claim 15 (original): The multilayer structure of claim 14, wherein $x+z$ is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claim 16 (original): The multilayer structure of claim 13, wherein z is zero.

Claim 17 (original): The multilayer structure of claim 16, wherein X is Se and X' is Te.

Claim 18 (original): The multilayer structure of claim 16, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claims 19-24 (cancelled).

Claim 25 (currently amended): A $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$ film grown by molecular beam epitaxy on a silicon based substrate, where x is a number between zero and one inclusive and z is greater than zero and less than one; having an overlayer of $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ thereon. The $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$ film of claim 24, wherein the $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$ film is substantially lattice matched to the overlayer of $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$.

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Claim 26 (currently amended): The film of claim ~~24~~ 25, wherein $x+z$ is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claims 27-31 (cancelled).

Claim 32 (currently amended): A $\text{CdS}_x\text{Te}_{1-x}$ film grown by molecular beam epitaxy on a silicon based substrate, where x is a number between 0 and 1 inclusive, having an overlayer of $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ thereon ~~The $\text{CdS}_x\text{Te}_{1-x}$ film of claim 31,~~ wherein the $\text{CdS}_x\text{Te}_{1-x}$ film is substantially lattice matched to the overlayer of $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$.

Claim 33 (currently amended): The film of claim ~~34~~ 32, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claim 34 (cancelled).

Claims 35-68 (canceled).

Claim 69 (new): A $\text{Cd}_{0.97}\text{Zn}_{0.03}\text{Se}_{0.1}\text{Te}_{0.99}$ film grown on a single crystal silicon (2 1 1) oriented based substrate, having an overlayer of $\text{Hg}_{0.78}\text{Cd}_{0.22}\text{Te}$ thereon, wherein the $\text{Cd}_{0.97}\text{Zn}_{0.03}\text{Se}_{0.1}\text{Te}_{0.99}$ film is substantially lattice matched to the overlayer of $\text{Hg}_{0.78}\text{Cd}_{0.22}\text{Te}$.